SLOVENSKI STANDARD
SIST EN 4178:2017

01-marec-2017

Nadomešča:
SIST EN 4178:2010

Aeronavtika - Vijaki, valjasta glava, šestzoba vdolbina, široka toleranca, srednja navojna dolžina, iz titanove zlitine, anodizirani, mazani z MoS2 - Klasifikacija: 1100 MPa (pri temperaturi okolice)/315 °C

Aerospace series - Screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, anodized, MoS2 lubricated - Classification: 1 100 MPa (at ambient temperature)/315 °C

Luft- und Raumfahrt - Flachkopfschrauben mit Sechs-Bogenzahn, mit mittlerer Gewindelänge, aus Titanlegierung, anodisiert, MoS2-geschmiert - Klasse: 1 100 MPa (bei Raumtemperatur)/315 °C

Série aérospatiale - Vis à tête cylindrique, à empreinte six lobes, tige normale à tolérance large, filetage moyen, en alliage de titane, anodisées, lubrifiées MoS2 - Classification : 1 100 Mpa (à température ambiante)/315 °C

Ta slovenski standard je istoveten z: **EN 4178:2017**

ICS:

49.025.30	Titan	Titanium
49.030.10	Navoji	Screw threads

SIST EN 4178:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4178

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ICS 49.030.10

Supersedes EN 4178:2009

English Version

Aerospace series - Screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, anodized, MoS2 lubricated - Classification: 1 100 MPa (at ambient temperature) / 315 °C

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This European Standard was approved by CEN on 4 March 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 4178:2017) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this European Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 4178:2009.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the characteristics of screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, anodized, MoS_2 lubricated.

Classification: 1 100 MPa [1] / 315 °C [2].

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2424, *Aerospace series — Marking of aerospace products*

EN 2491, *Aerospace series — Molybdenum disulphide dry lubricants — Coating methods*

EN 3911, *Aerospace series — Six lobe recess — Geometrical definition*

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defense Organizations*

EN 9133, Aerospace series - Quality management systems - Qualification procedure for aerospace standard parts

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads* [3]

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts* [3]

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position* [3]

ISO 9152, *Aerospace — Bolts, with MJ threads, in titanium alloys, strength class 1 100 MPa — Procurement specification* [3]

TR 3775, *Aerospace series — Bolts and pins — Materials* [4]

TR 4070, *Aerospace series — Molybdenum disulphide coatings — List of commercial products* [4]

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[1] Minimum tensile strength of the material at ambient temperature.

[2] Maximum temperature that the screw can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the surface treatment.

[3] Published by: ISO International Organization for Standardization (http://www.iso.ch/)

[4] Published as ASD-STAN Technical Report at the date of publication of this European Standard by AeroSpace and Defence industries Association of Europe - Standardization (ASD-STAN) (www.asd-stan.org)

3 Required characteristics

3.1 Configuration – Dimensions – Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres and apply after anodizing but before lubricating.

3.2 Tolerances of form and position

ISO 7913 and those specified in Figure 1 and Table 1.

3.3 Materials

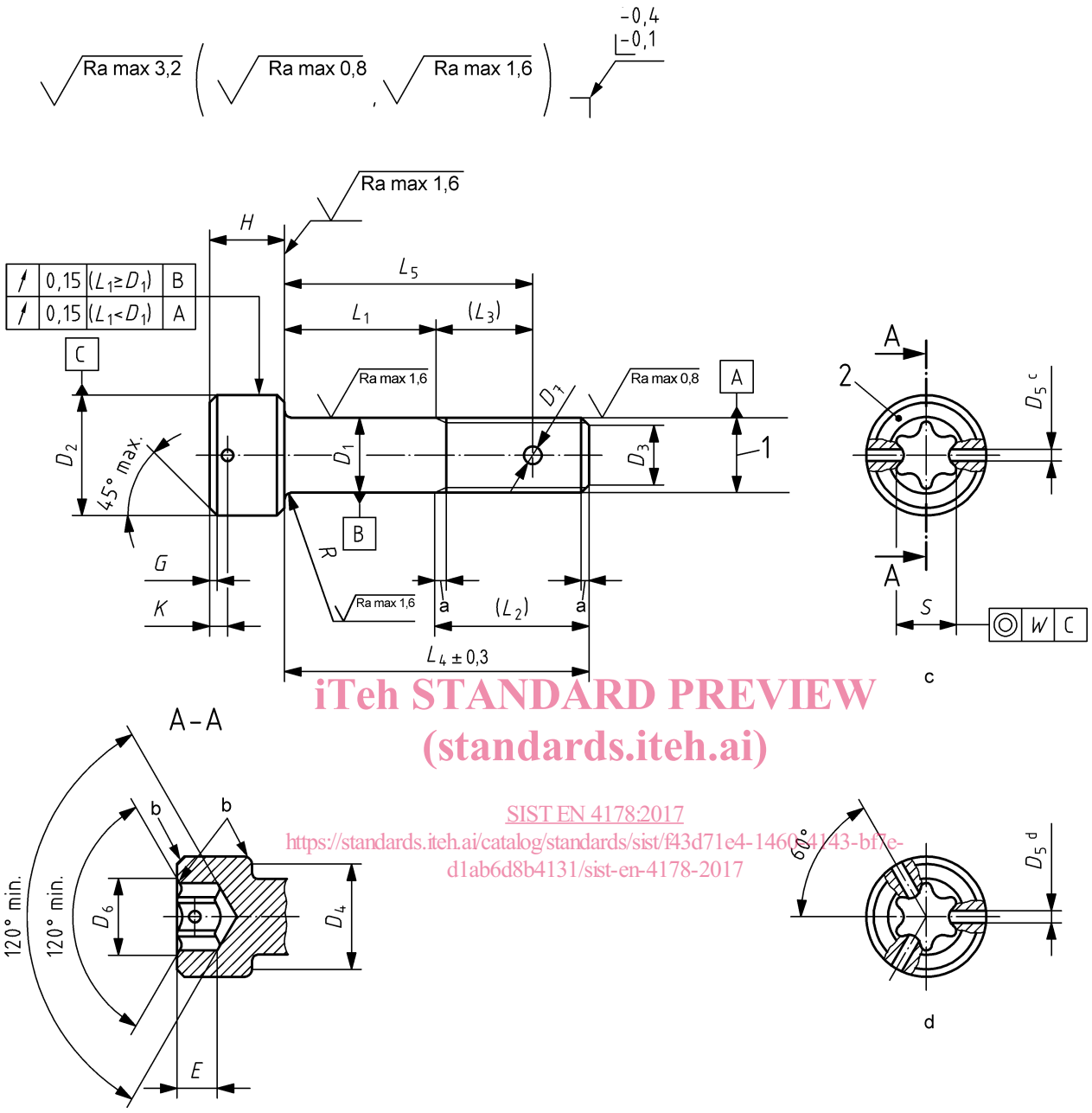
TR 3775 (titanium alloy, classification 1 100 MPa).

3.4 Surface treatment

Lubrication:

a) Lubricant: see Clause 4;

b) Application: EN 2491, 5 μm to 10 μm.



Key

1 Thread
2 Marking

a Conforms to ISO 3353-1
b Radius or chamfer
c Two holes optional for diameter codes 030 and 040
d Three holes optional for diameter codes 050 to 120
e $L_4 = L_1 + (L_2)$

Figure 1

Table 1

Diameter code	Thread [a]	D_1	D_2	D_3		D_4	D_5	D_6	D_7	E		G	H	
		h12	h13	Nom.	Tol.	min.	H13	max.	H13	Nom.	Tol.		Nom.	Tol.
030	MJ3x0,5 – 4h6h	3	5,5	2,3	0 – 0,5	5,07	1,0	3,4	-	1,5	+ 0,2 0	0,3	3	h13
040	MJ4x0,7 – 4h6h	4	7,0	3,0		6,53		3,9	1,1	2,0		0,4	4	
050	MJ5x0,8 – 4h6h	5	8,5	3,4	± 0,5	8,03		5,1	1,5	2,5		0,5	5	
060	MJ6x1 – 4h6h	6	10,0	4,2		9,38	1,4	6,3		3,0	+ 0,3 0	0,6	6	h14
080	MJ8x1 – 4h6h	8	13,0	6,2		12,33		7,5	1,9	4,0		0,8	8	
100	MJ10x1,25 – 4h6h	10	16,0	7,9		15,33	1,6	10,2	2,4	5,0	+ 0,5 0	1,0	10	
120	MJ12x1,25 – 4h6h	12	18,0	9,8		17,23		13,8		6,0		1,2	12	

Diameter code	K	$L_1 \pm 0,2$ [b] [c]		L_2	L_3	R		W	Recess	Mass [d]	
	± 0,1	Length code	Nom.			max.	min.		EN 3911 Code	[e]	[f]
030	0,9	002 to 030	2 to 30	7,5	-	0,4	0,2	-	10	1,04	0,055
040	1,4	002 to 040	2 to 40	10,0	6,0				25	2,26	0,100
050	1,6	003 to 050	3 to 50	12,0	7,5	0,5	0,3	0,22	27	4,55	0,153
060	2,0	003 to 060	3 to 60	14,0	8,5	0,7	0,5		30	6,95	0,222
080	2,4	004 to 080	4 to 80	16,5	10,5				45	15,44	0,395
100		005 to 100	5 to 100	20,5	13,0	0,8	0,6	0,27	50	29,30	0,616
120		006 to 120	6 to 120	22,5	14,5	0,9			55	43,10	0,887

[a] In accordance with ISO 5855-2.

[b] Increments:
1 for $L_1 \leq 30$;
2 for $30 < L_1 \leq 100$;
4 for $L_1 > 100$.

[c] If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_1, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

[d] Approximate values (kg/1 000 pieces), calculated on the basis of 4,45 kg/dm^3, given for information purposes only. They apply to screws without holes.

[e] Value for head and first L_4.

[f] Increase for each additional millimetre of L_4.